

AMENDMENTS TO THE CLAIMS

1-3. (Cancelled)

4. (Currently Amended) An apparatus for processing audio signals, and processing left and right channel audio signals, comprising:

a first gain-and high-pass filter processing unit receiving and processing the left channel audio signal;

a high pass filter processing unit coupled to the first gain unit;

a first low-pass filter processing unit-and delay processing unit connected with the first gain and high-pass filter processing unit coupled to the first high-pass filter processing unit;

a first delay processing unit coupled to the first low-pass filter processing unit;

a second gain-and high-pass filter processing unit receiving and processing the right channel audio signal;

a second high-pass filter processing unit coupled to the second gain unit;

a second low-pass filter processing-and delay processing unit connected with the second gain and high-pass filter processing unit coupled to the second high-pass filter processing unit;

a second delay processing unit coupled to the second low-pass filter processing unit;

a first subtracter connected to the output of the first gain-and coupled between the first high-pass filter processing unit-as well as the second low-pass filter processing and the second

delay processing unit, subtracting the output of the second delay processing unit from the output of the first high-pass filter processing unit; and

~~a second subtracter connected to the output of the second gain and coupled between the second high-pass filter processing unit as well as the first low-pass filter processing and the first delay processing unit, subtracting the output of the first delay processing unit from the output of the second high-pass filter processing unit;~~

wherein the first and the second gain units are used to prevent the first and the second high-pass filter processing units from being saturated.

5. (Currently Amended) The apparatus for processing audio signals as in claim 4, further comprising:

a third subtracter connected to the first subtracter and the second subtracter, mixing the output of the first subtracter with the output of the second subtracter;

a third gain unit coupled to process the output of the third subtracter;

a fourth subtracter connected to the first subtracter, subtracting the output of the third gain unit from the output of the first subtracter; and

a fifth subtracter connected to the second subtracter, subtracting the output of the third gain unit from the output of the second subtracter; and

~~a third gain unit connected to the third subtracter, the fourth subtracter, and the fifth subtracter.~~

6. (Cancelled)

7. (New) The apparatus for processing audio signals as in claim 4, further comprising:

a fourth gain unit receiving and processing the left channel audio signal;

a fifth gain unit receiving and processing the right channel audio signal;

a first adder coupled to the fourth subtracter and the fourth gain unit, combining the output of the fourth subtracter and the output of the fourth gain unit; and

a second adder coupled to the fifth subtracter and the fifth gain unit, combining the output of the fifth subtracter and the output of the fifth gain unit.